INTRODUCTION

The 2004 Integrated Water Quality Assessment Report is a summary of the water quality conditions in Virginia from January 1, 1998 to December 31, 2002. The Virginia Department of Environmental Quality (DEQ), with assistance from the Virginia Department of Conservation and Recreation (DCR), develops and submits the report to the U.S. Environmental Protection Agency (EPA) and the U.S. Congress every even-numbered year. The report satisfies the requirements of the U.S. Clean Water Act and the Virginia Water Quality Monitoring, Information and Restoration Act.

The goals of Virginia's water quality assessment program are to determine whether waters meet water quality standards and then design and implement a plan to restore waters with impaired water quality. Water quality standards designate uses for waters. There are six designated uses for surface waters: aquatic life, fish consumption, shellfish consumption, swimming, public water supplies, and wildlife. The standards define the water quality needed to support each of these uses. If a water contains more contamination than allowed by water quality standards, it will not support one or more designated uses. Such waters have impaired water quality.

Both human activities and natural processes cause impaired water quality. All impaired waters in Virginia are placed on a federally mandated 303(d) List. Waters that are impaired due to human activities require a plan to restore their water quality. DEQ schedules each of these waters for development of a plan that defines the limit of a pollutant that water can receive and still meet water quality standards. This plan is called a total maximum daily load or a TMDL. An implementation plan is developed after a TMDL is approved. Once fully implemented, a TMDL Implementation Plan will restore impaired waters and maintain their improved water quality.

Significant Changes From the 2002 Water Quality Assessment Report

The EPA now wants states to fully integrate two reports required under different sections of the U.S. Clean Water Act. Section 305(b) of the Clean Water Act requires states to submit a report on all information regarding its waters, and section 303(d) requires a list of waters with impaired water quality. The 2004 water quality assessment is the first one compiled by Virginia to combine both reports.

In accordance with new guidance in 2003, EPA developed five main categories with several subcategories for an overall rating of all surface waters. Virginia has further subcategorized some of the five EPA categories to facilitate follow-up monitoring and other agency tracking needs. It should be noted that EPA Category 4B and Virginia Category 5E were both created to track water quality effluent limited waters affected by point source discharges that have compliance schedules. There is no impaired mileage or size associated with these facilities. However, if the discharge is causing impairment to receiving water an associated area would be listed as impaired and the source of impairment would be the facility. Additional information regarding this new categorization and other associated assessment methodologies can be found in Chapter 2.2 of this report and/or the 2004 Assessment Guidance Manual found on the DEQ water website at www.deq.virginia.gov/wqa.

Data Used To Determine Water Quality

There are two basic types of water quality data used in the assessment process. The first type is "monitored" data approved through the quality assurance/ quality control process (QA/QC). The data come from stream monitoring—the collection and analysis of chemical, biological, and physical samples taken by DEQ—and any other DEQ-approved data. These data are considered of the highest quality. Normally, the U.S. impaired waters list as determined by the EPA consists of only QA/QC-approved monitored data. Monitored data are obtained using EPA-accepted methods and DEQ-approved protocols. All non-DEQ monitoring submittals, except chemical data submittals from the U.S. Geological Survey, must provide a sampling and analysis protocol and all field data for review.

The second type of data used in the assessment is considered "evaluated" data. These physical, chemical, and biological data are primarily obtained from sources without an EPA- or DEQ-accepted sampling protocol. These data are considered to be of lower quality than the monitored data with little

confidence in their results and normally are not used directly for listing waters as impaired. Additionally, waters that were on previous impaired waters lists but do not have any additional monitoring data for the 2004 assessment period will reflect the results of the previous assessment for the associated designated uses.

Another important modification to the 2004 assessment is the inclusion of estuarine benthic data. The Chesapeake Bay Program has been very active in sampling and analyzing estuarine waters and has provided DEQ with data for assessment review. EPA directed Virginia and the state of Maryland to work together to develop a method to assess the random benthic index of biological indicators (B-IBI) collected by the Chesapeake Bay Program.

Planning though 2008 and Beyond

The 2006 assessment report will be the last Integrated Water Quality Assessment Report in Virginia with a five-year reporting period. In the 2008 and future reports, DEQ will employ a six-year reporting period in order to include one complete statewide watershed monitoring rotation. This change also will help to increase the number of definitive assessment determinations that can be made in a given report. DEQ will also schedule future revisions of the water monitoring strategy to coincide with each six-year monitoring cycle. The water monitoring strategy will be revised by the beginning of each six-year watershed monitoring rotation cycle. This will enable DEQ to redirect available water monitoring resources, as needed, using data from across the state. This strategy will include a 2005 - 2014 implementation plan. In addition to revisions of the entire water monitoring strategy in both 2007 and 2013, the implementation plan will also be updated in 2010.

In 2005, DEQ will update its trend analysis of water quality in Virginia with new data analysis tools. The results of this trend analysis will be reported in the 2006 Integrated Water Quality Assessment Report. By 2007, DEQ will complete both monitoring and data analyses from a five-year probabilistic monitoring study. It will provide a statistically supported statewide snapshot of water quality and the predominate sources of water quality problems. As part of the free-flowing probabilistic monitoring study, stream habitat is being analyzed to determine if benthic habitat is being negatively affected. Virginia Commonwealth University, with support from DCR, is also doing independent work on aquatic community health. Results of these studies will be reported in the 2008 Virginia Water Quality Assessment Integrated Report.

Equally important for assessments in the future is the increased inclusion of non-DEQ water quality data. While quality assurance and quality control (QA/QC) continues to be a concern for direct use of outside data, DEQ will make a considerable effort to improve the data quality of outside providers by reviewing monitoring protocols and suggesting means for improving data quality. Our objective is to certify additional non-DEQ QA/QC data for designated use determination in the overall statewide water quality assessment.

For more information relating to water quality programs and initiatives visit the DEQ web site at www.deq.virginia.gov/water.